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Each member of the academy should engage in some work which promises fruitful results, and which will in a measure bring recognition for the work. No individual should be satisfied in his present condition. Each person should strive to add something to the world's store of knowledge.

If an organism should cease to make effort when the fatigue point is reached, there could be little advancement in power or progress. If the inhabitants of the world should cease to press in search of the unknown, progress would cease. We can not remain in a fixed condition. We must press forward or fall backward. The masses of mankind are carried forward by the efforts of the few. The greatest triumphs of the century soon become the common property of the people. With the rapid increase of knowledge and the present great differentiation of labor one must seek a limited field and drive some subject hard and increasingly. Membership in this academy indicates a desire to carry on progressive work. The coming annual meetings will give the results of the individual efforts.

In this brief sketch I have but hinted at some of the reasons for the existence of this organization, and have suggested some of the ways in which, as it appears to me, the academy may do good in the state. There are many others yet unrecounted. But if I have encouraged the members to greater individual effort and have led them to feel they are not alone, although a hundred miles from those in sympathy with the work, I shall be satisfied. Montana is not yet out of touch of pioneers. The old hunter and trapper has almost disappeared. The population is fast becoming stable. The pioneers are now those first to take up the work incident to the development of the educational and esthetic life of the people. For the accomplishment of this end the Academy of Sciences, Arts and Letters takes its place with other organizations. Its life and work will represent the activity of the members which shall make up the organization. May it have a long and useful life.

MORTON J. ELROD.

UNIVERSITY OF MONTANA.

SCIENTIFIC BOOKS.

A Manual of Zoology. By RICHARD HERTWIG. From the fifth German edition. Translated and edited by J. S. KINGSLEY. New York, Henry Holt & Co. 1902. 8vo. Pp. 704.

An English translation of the whole of this valuable manual has been needed, though we had from Dr. Field a good translation of the first or general part. Professor Kingsley has now added a translation of the second, the whole volume well rounding out the series of superior text-books of zoology now at the service of the student and teacher. With two such text-books as Parker and Haswell's 'Zoology,' and the one before us, the zoologist of the present day is fortunate.

Although we are not sure but that, for the student or beginner, the general principles of modern zoology should follow the description of the types or of the principal groups, it is safe to say that the student will nowhere find such a valuable, concise, comprehensive and reliable statement of the general subject as in this volume. It comprises not only a history of the science in nearly all its phases, but the philosophy of zoology, a subject now very much needed for students who are perhaps too early led to specialize. One might wish that the matter of geographical distribution could have been edited with reference to that of North and South America, and that more space could have been given to ecology or bionomics. But the subject covers so broad a field, and on the whole is treated in so equable a manner, that this may seem a superfluous criticism.

In the history of the evolution theory the statement is made that 'Lamarck, in accordance with the then prevailing conceptions,

regarded the animal kingdom as a single series grading from the lowest primitive animal up to man.' This is a mistake. Hertwig could never have carefully read what Lamarck did say, or have known that he was the first to throw aside a serial arrangement and to sketch out a two-branched genealogical tree of the animal kingdom as he knew it. Lamarck, on the contrary, says, referring to the existing animals: 'I claim that they form a branched series,' etc.

The translation uses the word 'rudimental' for vestigial. On page 180, in enumerating the classes represented in the Cambrian period, the brachiopods are omitted, and only six classes in all are enumerated, whereas there are the remains of the representatives of thirteen or fourteen.

The portion on 'Special or Systematic Zoology' is a very useful summary of the characters of the phyla, classes and orders, and in some cases of the suborders and families. Of course, in the matter of classification zoologists even now differ very much. While in the first edition of the original work (1892) the animal kingdom is divided into only seven phyla, there are in the present translation ten. Professor Kingsley has made important changes from the German edition in the classification of the arthropods. He has done well to assign the sponges to a separate phylum (Porifera). The Mollusca are made to precede the Arthropoda. We are unable to follow the translator in placing the Trilobita among the Crustacea, and in separating the Gigantostraca (why not Merostomata, which has the priority by many years?) from the Trilobita. On the other hand, the Merostomata are not included in the Arachnida as is done by some English zoologists. For Trilobitæ Trilobita is preferable, as it is the original spelling of McLeay in 1840. Trilobitæ is the term given by a later author.

The Myropoda are very judiciously treated, and we quite agree with Professor Kingsley in breaking up the old group Myriopoda into two groups, placing the Diplopoda, with the 'Pauropida' (*sic*) apart from the Chilopoda. With the classification of the insects we should have some fault to find; certainly the Rhynchota should not be placed in so high a position between the Hymenoptera and Diptera. The Lepidoptera are divided into six suborders, a singular arrangement allowed to remain over from the German text, without change. More modern views might have been adopted in the translation.

A few slips or errors remain to be noticed which could be corrected in a second edition, which we doubt not will soon be called for. Did not Ledermüller speak of 'Infusionsthiere' a little previous to Wrisberg, who called the infusoria 'Animalcula infusoria'? The use here and there of the word 'ringing' for segmentation is not happy. In the too brief account, to be very useful, of *Pithecanthropus* mention is made of 'a molar tooth,' whereas three have been found.

There is a commendable absence of typographical errors. We have only noticed 'trocophere,' page 316; 'correllate,' page 389; 'chelefer,' page 450, and 'Pauropida,' on page 497. The copy we have before us is rather faintly printed, and the cuts are not always evenly printed.

A. S. Packard.

EUCALYPTS CULTIVATED IN THE UNITED STATES.

Bulletin 35 of the Bureau of Forestry, U. S. Department of Agriculture, is a handsome volume devoted exclusively to Professor McClatchie's valuable memoir on the 'Eucalypts Cultivated in the United States.' It is profusely and beautifully illustrated, well printed on good paper and every way worthy of all concerned in its production. Above all, it is a timely publication, particularly so when the need of southern California is considered in the matter of fuel. With the extraordinary increase of population in this part of the state follows a corresponding increase in the demand for fuel. The supply furnished by the native trees, red and white oaks, juniper, mesquit, etc., is rapidly diminishing; already the eucalypts, principally *E. robusta* and *E. globulus,* contribute one half or more of the wood fuel. Coal, gas, gasoline and kerosene are largely used; nevertheless, the demand for fire-wood is constantly increasing. Not infrequently the daily papers notice the